Kary Myers

Los Alamos National Laboratory
Statistical Sciences Group
Los Alamos, New Mexico 87545

505.606.1455
kary@lanl.gov
www.stat.lanl.gov/staff/KMyers/kmyers.shtml

Professional Experience

2006-present	**Los Alamos National Laboratory**, Los Alamos, New Mexico *Scientist*, Statistical Sciences Group
2001	**WhizBang! Labs Research**, Pittsburgh, Pennsylvania *Graduate Research Assistant*
1999, 2000	**AT&T Shannon Labs**, Florham Park, New Jersey *Graduate Research Assistant*, Artificial Intelligence Department and Machine Learning Department

Education

2006	**Carnegie Mellon,** Pittsburgh, Pennsylvania Ph.D., Statistics Department *Thesis:* Developing Models to Reveal Brain Activation in Massive Neuroimaging Datasets
2002	M.S., Machine Learning Department *Master's project:* A Boosting Approach to Topic Spotting on Subdialogues
1999	B.S. with University and College Honors, Statistics Department (Computer Science Minor) *Honors thesis:* Finding Galactic Clusters in Massive Astrophysical Datasets

Honors and Awards

2015	New Mexico Small Business Association "Success Story"
2014	American Statistical Association Chapter Service Recognition Award
2011-2013, 2007	Los Alamos Achievement Award
2011	Early Career Scholarship, Isaac Newton Institute for Mathematical Sciences
2011	Certificate of Appreciation, ASA Section on Physical and Engineering Sciences
1999-2005	AT&T Labs Fellowship
2004	Student Paper Competition Winner, Statistical Computing and Graphics Sections of the American Statistical Association
2005, 2004	Student Scholarship, Spring Research Conference on Statistics in Industry and Technology
2004	Outstanding Reviewer Award, American College of Gastroenterology
1999-2003	Carnegie Scholars Program Fellowship
1999	Election to Phi Beta Kappa, Phi Kappa Phi, and Sigma Xi
1999	Richard Schoenwald Phi Beta Kappa Undergraduate Research Prize
1999	Lucent Technologies First Prize, Sigma Xi Undergraduate Research Competition

Activities and Service

Editorial Service

2014-present	**Associate reviews editor**, *Journal of the American Statistical Association*
2014-present	**Associate editor**, *Journal of Quantitative Analysis in Sports*
2014-2015	**Special issue editor**, *Statistical Analysis and Data Mining*
2012-present	**Associate editor**, *Annals of Applied Statistics*
2012-2013	**Special issue associate editor**, *Technometrics*
2011-2014	**Production editor**, *Bayesian Analysis*,
2010-present	**Editor**, *CHANCE* magazine
2004-present	**Referee**, *Technometrics*, *Journal of Chemometrics*, *The American Statistician*, *Optical Engineering*, *Journal of Computational Neuroscience*, *American Journal of Gastroenterology*

Conference Organization

2014	**Chair**, Conference on Data Analysis (CoDA) 2014
2012	**Founder and chair**, Conference on Data Analysis (CoDA) 2012
2007	**Co-chair**, Quality and Productivity Research Conference

Service to the American Statistical Association

2012-2013	**Founding officer and section representative** (appointed), Statistics in Imaging
2012-2013	**Program chair** (elected), Statistical Graphics
2011-2013	**President** (elected), Albuquerque Chapter
2010-2011	**Program chair** (elected), Physical and Engineering Sciences
2010	**Program chair** (appointed), Council of Chapters
2009	**Student award selection committee member**, Bayesian Statistical Science
2007	**Organizer**, Special Award of the American Statistical Association, Intel International Science and Engineering Fair

Other Service

2015	**Selection committee member**, Department of Energy Computational Science Graduate Fellowship
	Peer reviewer, Laboratory Directed Research and Development Program:
2015	• Co-chair, Information Science & Technology Committee
2013, 2014	• Member, Computer Science, Mathematics, and Data Science Committee
2013	• Member, Early Career Research Committee
	Peer reviewer, National Institutes of Health:
2009	• Grand Opportunities Program ("GO Grants")
2009	• Neurological, Aging and Musculoskeletal Epidemiology Study Section
2008	• Infectious, Reproductive, Asthma, and Pulmonary Study Section
2008	**Instructor**, Expanding Your Horizons Los Alamos

Professional Memberships

Phi Beta Kappa, Phi Kappa Phi, Sigma Xi Scientific Research Society, American Statistical Association, Association for Women in Mathematics

Publications and Presentations

Refereed Articles in Journals and Conference Proceedings

2015 **K. Myers**, E. Lawrence, M. Fugate, J. Woodring, J. Wendelberger, and J. Ahrens. An In Situ Approach for Approximating Complex Computer Simulations and Identifying Important Time Steps. *Technometrics*, in revision.

2014 B. Nouanesengsy, J. Woodring, J. Patchett, **K. Myers**, and J. Ahrens. ADR Visualization: A Generalized Framework for Ranking Large-Scale Scientific Data Using Analysis-Driven Refinement. In *4th IEEE Symposium on Large Data Analysis and Visualization (LDAV)*.

2014 Y. Su, G. Agrawal, J. Woodring, **K. Myers**, J. Wendelberger, J. Ahrens. Effective and Efficient Data Sampling Using Bitmap Indices. *Cluster Computing*, DOI 10.1007/s10586-014-0360-5.

2013 Y. Su, G. Agrawal, J. Woodring, **K. Myers**, J. Wendelberger, J. Ahrens. Taming Massive Distributed Datasets: Data Sampling Using Bitmap Indices. *22nd International ACM Symposium on High Performance Parallel and Distributed Computing*, 13-24.

2013 T. Burr, M.S. Hamada, **K. Myers**, M. Skurikhin. Point-Source Detection Using Gamma-Ray Spectra in Radiation-Portal Monitoring. *Journal of Quality Technology*, 45(3), 285-296.

2013 C. Longo, T. Burr, **K. Myers**. Change Detection Using Wavelets in Solution Monitoring Data for Nuclear Safeguards. *Axioms* (2), 271-285.

2012 T. Burr, A. Bakel, S. Bryan, K. Budlong-Sylvester, J. Damico, S. Demuth, M. Ehinger, H. Garcia, J. Howell, S. Johnson, J. Krebs, **K. Myers**, C. Orton, M. Thomas. Roles for Process Monitoring in Nuclear Safeguards at Aqueous Reprocessing Plants. *Journal of Nuclear Materials Management*, 40(2), 42-53.

2011 D. Hush, N. Pawley, **K. Myers**, R. Nemzek. A comparison of methods for estimating broadband noise in the frequency domain. In *Asilomar Conference on Signals, Systems and Computers* , IEEE Computer Society, 316-320.

2011 D.I. Moody, S.P. Brumby, **K.L. Myers**, N.H. Pawley. Radio frequency (RF) transient classification using sparse representations over learned dictionaries. In *SPIE Optical Engineering Applications*, International Society for Optics and Photonics, doi:10.1117/12.898894.

2011 D.I. Moody, S.P. Brumby, **K.L. Myers**, N.H. Pawley. Classification of transient signals using sparse representations over adaptive dictionaries. In *SPIE Defense, Security, and Sensing*, International Society for Optics and Photonics, doi:10.1117/12.883341.

2011 D.I. Moody, S.P. Brumby, **K.L. Myers**, N.H. Pawley. Sparse classification of RF transients using chirplets and learned dictionaries. In *Asilomar Conference on Signals, Systems and Computers* , IEEE Computer Society, 1888-1892.

2010 S. Brumby, **K. Myers**, and N. Pawley. Capturing dynamics on multiple time scales: A multilevel fusion approach for cluttered electromagnetic data. *SPIE Defense, Security, & Sensing*.

2009 N. Pawley, **K. Myers**, J. Galbraith, and S. Brumby. Capturing dynamics on multiple time scales: A hybrid approach for cluttered electromagnetic data. *43rd Asilomar Conference on Signals, Systems, and Computers*.

2009 T. Burr and **K. Myers**. Effects of background suppression of gamma counts on signal estimation. *Applied Radiation and Isotopes*, **67**, 1729-1737.

2008 T. Burr and **K. Myers**. Signatures for several types of naturally occurring radioactive material. *Applied Radiation and Isotopes*, **66**, 1250-1261.

2007 **K.L. Myers**, A.E. Brockwell, and W.F. Eddy. State-space models for optical imaging. *Statistics in Medicine*, **26**, 3862-3874.

2007 T. Burr, J.R. Gattiker, **K. Myers**, and G. Tompkins. Alarm criteria in radiation portal monitoring. *Applied Radiation and Isotopes*, **65**, 569-580.

2004 **K. Myers**. The billion byte brain: Combining physiological data and gigabytes of images to improve maps of brain activity. *2004 Proceedings of the American Statistical Association*.
•Winner, Statistical Computing and Graphics Sections Student Paper Competition

2000 **K. Myers**, M. Kearns, S. Singh, and M.A. Walker. A boosting approach to topic spotting on subdialogues. *Proceedings of the Seventeenth International Conference on Machine Learning*, 655-662.

Technical Reports

2010 N.H. Pawley, **K.L. Myers**, J.P. Layne, and R.J. Nemzek. Analysis of RF signatures from multiple DOE foundries. Los Alamos National Laboratory Technical Report LA-CP-10-01600.

2010 R.J. Nemzek, T.D. Hamlin, S.C. Bender, J.P. Layne, **K.L. Myers**, N.H. Pawley, and R.W. Wysor. Propagation of emissions from the 3/P-DUT under differing power configurations during the Kazoo-3 test. Los Alamos National Laboratory Technical Report LANL-NISC-10-0036.

2010 N.H. Pawley, R.J. Nemzek, **K.L. Myers**, and T.D. Hamlin. Variation of RF signatures with simultaneous operation of multiple V-DUTs. Los Alamos National Laboratory Technical Report LANL-NISC-10-20.

2010 **K.L. Myers**, R.J. Nemzek, N.H. Pawley, and T.D. Hamlin. Variation of RF signatures across ten V-DUTs. Los Alamos National Laboratory Technical Report LANL-NISC-10-0009.

2010 **K.L. Myers**, N.H. Pawley, and R.J. Nemzek. V-DUT Pseudostacking: Understanding the limitations imposed by unit-to-unit variability in an idealized stacking scenario. Los Alamos National Laboratory Technical Report LANL-NISC-10-0010.

2009 R.J. Nemzek, T.D. Hamlin, **K.L. Myers**, and N.H. Pawley. Spectral prescriptions for DUTs used in the Kazoo and INL test campaigns. Los Alamos National Laboratory Technical Report LANL-NISC-09-0215.

2009 R.J. Nemzek, S. Bender, T.D. Hamlin, J. Layne, **K.L. Myers**, and N.H. Pawley. LANL RF measurements during the Kazoo-2 campaign. Los Alamos National Laboratory Technical Report LANL-NISC-09-0216.

1999 A. Moore, J. Schneider, B. Anderson, S. Davies, P. Komarek, M.S. Lee, M. Meila, R. Munos, **K. Myers**, and D. Pelleg. Cached Sufficient Statistics for Automated Mining and Discovery from Massive Data Sources. Technical report, Robotics Institute and School of Computer Science, Carnegie Mellon University.

Other Articles

2014 **K. Myers** and S. Vander Wiel. Invited discussion of "Data Science: An Action Plan for Expanding the Technical Areas of the Field of Statistics" by William S. Cleveland. *Statistical Analysis and Data Mining*, **7**(6), 420-422.

2008 **K. Myers**. Strategies for pursuing graduate school fellowships. *International Society for Bayesian Analysis Bulletin*, **15**(2).

2007 W.F. Eddy, R. McNamee, and **K.L. Myers**. Imaging the living brain. *CHANCE*, **20**(4).

Selected Invited Presentations

2010-2014	*Malt Balls or Malt Beer? Detecting the Prohibited Operation of Dual-Use Facilities*. Lawrence Livermore National Laboratory; Kansas State; Carnegie Mellon; Simon Fraser University; Universität Augsburg Institut für Mathematik, N.O.R.C., Draper Laboratory, Colorado School of Mines.
2009	*Same or Different? Identifying Similarities and Computing Distances Between Images.* Joint Statistical Meetings, Washington, DC.
2007	*Learning from Neuroscience Data* (with Rob Kass). Summer Workshop in Neuroimaging, Center for the Neural Basis of Cognition, Pittsburgh, Pennsylvania.
2005	*Developing Models to Reveal Brain Activation in Massive Neuroimaging Datasets.* Spring Research Conference on Statistics in Industry and Technology, Park City, Utah.
2005	*Revealing Brain Activity with Filters.* ENAR Spring Meeting, Austin, Texas.
2004	*Brains on Film: Using Optical Imaging to Build Maps of Brain Activity.* Interface 2004, Baltimore, Maryland.
2004	*The Billion Byte Brain: Combining Physiological Data and Gigabytes of Images to Improve Maps of Brain Activity.* Center for Automated Learning and Discovery Research Day, Carnegie Mellon.
2002	*The Progression of Occupational Asthma: Assessing Data Quality for Studying Changes in Nasal Airway Volume Via Magnetic Resonance Imaging of Mice.* Statistics Department, Carnegie Mellon.
2001	*And the Winner Is… Extracting Information from Sports Recaps.* WhizBang! Labs Research, Pittsburgh, Pennsylvania.
2000	*Who Is John Galt? Machine Learning for Extraction of Biographies from Text.* AT&T Shannon Labs, Florham Park, New Jersey.
1999	*Finding Galactic Clusters in Massive Astrophysical Datasets.* Center for Automated Learning and Discovery Corporate Members Meeting, Carnegie Mellon.
1999	*Probabilistic Methods for Robotic Landmine Search.* Sigma Xi Undergraduate Research Competition, Carnegie Mellon.

Research Areas

Selected Los Alamos Research

MATADOR: Methods for Analyzing Temporal Activity from Data Observed Remotely
Led a 2-lab effort to detect and characterize prohibited operation of multi-use facilities. Building on functional data analysis and bioinformatics techniques.

DAIS-E: Data Analysis In-Situ Engine
Developed statistical methods to incorporate within massive scientific simulations in order to identify interesting results as they arise during the simulation run.

Synthetic Dataset Development for Electromagnetic Signatures
Involved in the formation of a 4-lab effort to model electromagnetic emissions and signatures. Apply statistical approaches to the tasks of model validation and data set generation.

Exploitation of Radiofrequency Signatures
Provided statistical and algorithm expertise to detect and quantify signatures in radiofrequency measurements.

Cyber Quantitative Risk Initiative
Developed a quantitative, risk-based approach for protecting information systems at Los Alamos National Laboratory by incorporating information from both qualitative and quantitative data sources.

Image Metrics
Developed metrics for comparing experimental images to simulated images.

Radiation Portal Monitoring
Tested several methods for accounting for background suppression when using gamma detectors at border crossings to detect illicit nuclear material.

Graduate Research

Making Maps of Brain Activation with Optical Imaging Data
Thesis research. Identifying and modeling physiological and instrumental sources of noise in optical imaging data in order to make better maps of brain activity.

Magnetic Resonance Imaging of Changes in Nasal Airway Volume
Identified areas for improving experimental design and magnetic resonance imaging technique in a study of mice exposed to isocyanates.

Maximum Entropy Markov Models for Part-of-Speech Tagging
Wrote software using maximum entropy Markov models (McCallum et al., 2000) to assign part-of-speech tags to words in a body of text.

Machine Learning for Extraction of Biographies from Text
Explored the task of augmenting a question answering system with a means of identifying descriptive text that could answer "Who is X?"

A Boosting Approach to Topic Spotting
Applied BoosTexter (Schapire & Singer, 2000) to the Switchboard corpus of spontaneous speech to develop an end-to-end system for topic spotting.